

MANUFACTURING METHOD AND COMPOSITE POWDER METAL ROTOR ASSEMBLY FOR CIRCUMFERENTIAL TYPE INTERIOR PERMANENT MAGNET MACHINE

Abstract of the Disclosure

A composite powder metal disk for a rotor assembly in a circumferential type interior permanent magnet machine. The disk includes an inner ring of magnetically conducting powder metal compacted and sintered to a high density. The disk further includes an outer ring of permanent magnets separated by magnetically non-conducting powder metal compacted and sintered to a high density. The permanent magnets additionally are radially embedded by magnetically conducting powder metal compacted and sintered to a high density with optional intermediate non-conducting powder metal bridges extending radially from the permanent magnets to the outer surface of the disk. A rotor assembly is also provided having a plurality of the composite powder metal disks mounted axially along a shaft with their magnetic configurations aligned. A method for making the composite powder metal disks is further provided including filling a die with the powder metals, compacting the powders, and sintering the compacted powders.